

CLAIM OR CLAIMS

1. A hinge assembly comprising:

(a) an elongate track having a width;

(b) a support extension fixedly connected to the track, the support extension having an integral planar bearing surface and an end cap extending transverse to the bearing surface;

(c) a first link pivotally connected to the support extension at a first pivot point, the first link movable between a closed position and an open position, the first link having a given length, and the bearing surface underlying the given length of the first link in the closed position;

(d) a second link pivotally attached to the support extension at a second pivot point spaced apart from the first pivot point to locate the first pivot point intermediate the second pivot point and the end cap, the second link movable between a closed position and an open position, the bearing surface underlying a length of the second link in the closed position;

(e) a shoe slidably engaging the track;

(f) a sash bar pivotally attached to the first link; and

(g) a strut pivotally attached to the sash bar, the second link and the shoe.

2. The hinge assembly of Claim 1, wherein the bearing surface underlies a sufficient length of the second link in the closed position to preclude detrimental deflection under an operating load.

3. The hinge assembly of Claim 1, wherein the track is formed of a first metal and the support extension is formed of a different second metal.

4. The hinge assembly of Claim 1, wherein the first link and the second link include cooperating features to define an engagement through a limited range of motion between the open position and the closed position.

5. A hinge assembly comprising:

(a) a track having a width;

(b) a support extension attached to the track, the support extension having a planar bearing surface;

(c) a first link pivotally attached to the support extension at a first pivot point, the first link movable between the closed position and an open position, the first link having a given length, and the bearing surface underlying the given length of the first link in the closed position;

(d) a second link pivotally attached to the support extension at a second pivot point spaced apart from the first pivot point, the second link movable between a closed position and an open position, the bearing surface underlying a length of the second link in the closed position;

(e) a shoe slidably engaging the track;

(f) a sash bar pivotally attached to the first link; and

(g) a strut pivotally attached to the sash bar, the second link and to the shoe.

6. The hinge assembly of Claim 5, wherein the support extension includes an integral end cap.

7. The hinge assembly of Claim 5, wherein the first link and the second link in the open position dispose the sash bar generally perpendicular a longitudinal dimension of the track.

8. The hinge assembly of Claim 5, wherein the first link includes one of a tab and a capture recess and the second link includes a remaining one of the tab and the capture recess.

9. The hinge assembly of Claim 8, wherein the tab and the capture recess are sized to profitably engage through only a portion of motion between the open position and the closed position of the first and second links.

10. The hinge assembly of Claim 5, wherein the support extension is an integral monolithic piece.

11. The hinge assembly of Claim 5, wherein the support extension includes at least two apertures.

12. The hinge assembly of Claim 5, further comprising an end cap integrally formed with the support extension, the end cap having a collection surface described by a curve with a continually varying first derivative.

13. The hinge assembly of Claim 5, wherein one of the track, the first link, the second link and the sash bar define a stop to limit movement of the hinge assembly beyond a predetermined open configuration.

14. The hinge assembly of Claim 5, wherein the support extension has a longitudinal centerline, and a dimension of the end cap along the longitudinal direction increases with an increasing distance from the centerline.

15. A hinge assembly comprising:

- (a) a track having a width;
- (b) a support extension attached to the track, the support extension having a planar bearing surface;
- (c) a first link pivotally attached to the support extension at a first pivot point, the first link movable between a closed position and an open position;
- (d) a second link pivotally attached to the support extension at a second pivot point spaced apart from the first pivot point, the second link movable between a closed position and an open position, the first link, the second link and the bearing surface sized to dispose an entire length of one of the first link and the second link on the bearing surface in the closed position of the first link and the second link;
- (e) a shoe slidably engaging the track;
- (f) a sash bar pivotally attached to the first link; and
- (g) a strut having pivotal attachments to the sash bar, to the second link and to the shoe.